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NOTES ON GEOGRAPHIC DISTRIBUTION

# Amphibia, Bufonidae, *Didynamipus sjostedti* Andersson, 1903: New records and a review of geographic distribution

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**ABSTRACT:** *Didynamipus sjostedti* is reported from two new sites in southwest Cameroon. The distribution of this species is discussed with a review of known specimens.

The herpetofauna of Cameroon is particularly diverse in anurans, hosting more than 3% of the global diversity of species (Lawson and Klemens 2001). Despite the disproportionately large number of species recorded from this area of western Africa, the region remains poorly explored (Amiet 1983) and new species are continuously being described (e.g. Lötters and Schmitz 2004; Blackburn 2008; Blackburn *et al.* 2009; 2010; Rödel *et al.* 2012). Among this diverse frog fauna is *Didynamipus sjostedti* Andersson, 1903, once considered the rarest bufonid in Africa (Grandison 1981).

At the time of Grandison's publication (1981) in which she reported two specimens from Kendonge Forest Reserve (Cameroon), this species was known from the two syntypes from an unknown locality in Cameroon (Andersson 1903) and two females from the island of Bioko (Fernando Po), Equatorial Guinea (Boulenger 1906). Though the population of Bioko had not been observed since 1965 (Mertens 1965), recent assessment of the amphibians of Bioko by the Bioko Biodiversity Protection Program (BBPP; Weinberg 2008) reports the persistence of a "large and healthy population". In 1984 Gartshore reported observation of more than 200 individuals on the south-facing slope of Mt. Cameroon and provided nearly all of what is known of the natural history of this species. Lawson (1993) extended the geographic distribution north and east with the report of a single individual found crossing a road in an area of subsistence farming and secondary forest east of Baro and Korup National Park. Additional, unreported (n=11) specimens were collected by Lawson in the same region and are housed in the U. Texas Arlington Collection of Vertebrates. This northward extension of the range was followed by the recent discovery of this species in the Oban Hills area of Cross River National Park, Nigeria (Onadeko *et al.* 2010). Additionally, the most recent IUCN (2012) assessment of this species reports the presence of a "healthy population" in "the Makoko Forest Reserve north-west of Mt. Cameroon close to the border with Nigeria". Herein we report the discovery of additional populations of *D. sjostedti* from southwest Cameroon and comment on the reproductive strategy of this species.

Recent herpetofaunal survey efforts in the South West Region of Cameroon (permit no. 99, 16 Dec. 2011) has revealed the presence of two new localities of *D. sjostedti* and brought to light the need for a synthesis of the geographic extent of this species. On 14-15 July 2011 approximately 30 individuals were observed in the moist leaf litter under the closed canopy of both primary and secondary forest along transects east of Mukango, near Lipenja at an elevation of 500-600 m. Five voucher specimens were deposited in the Museum für Naturkunde (ZMB 77471-77475). Subsequent survey efforts approximately 35 km northeast of this location, in an area of secondary forest near the village of Talangaye on 26 & 29 February, 2012, revealed 12 individuals throughout the sampled (~1 $km^2$) area (elevation 466-572 m). Additionally, two previously unreported specimens from Nguti, ~20 km north of the Talangaye site, are housed at the Smithsonian Institution (Table 1). These new localities, and that of Lawson (1993) lie in the area between Korup National Park, Bakosi Mountains Wildlife Reserve, Rumpi Hills and Banyang Mbo Protected Areas. Though this species has not been found in any of these protected areas, herpetofaunal sampling has been particularly poor in these areas (Gartshore 1984; Lötters and Schmitz 2004; but see Amiet, 1975). Given these new observations and the paucity of herpetofaunal sampling in the region, it is clear that the distribution of *D. sjostdeti* is far broader than previously believed (Figure 1) and this species can no longer be considered the rarest bufonid in Africa. Further sampling in the vast (~4,000 km2) Cross River National Park, Nigeria and the protected areas of southwestern Cameroon are likely to broaden the range of this species further and provide a more continuous picture of the distribution of this species.

Little is known about the natural history of this species. Previously published reports and our own observations indicate that *D. sjostedti* lives on forest edges and in clearings in moist forest from the lowlands to the submontane in the Cameroon Volcanic Belt (Grandison 1981; Gartshore 1984; Lawson 1993; this study). Our

**Table 1.** Localities for *Didynamipus sjostedti*; Numbers correspond to localities in Figure 1.

| LOCALITY | LATITUDE | LONGITUDE | REFERENCE |
|---|---|---|---|
| 1. Bioko | 3.583[1] | 8.748[1] | Boulenger 1906; Mertens 1965; Weinberg 2008 |
| 2. Mokoko Forest Reserve | 4.423[2] | 9.049[2] | IUCN 2012 |
| 3. Mt. Cameroon | 4.116 | 9.1 | Gartshore 1984 |
| 4. Kendonge Forest Reserve | 4.487[3] | 9.391[3] | Grandison 1981 |
| 5. Baro road | 5.35 | 9.677 | Lawson 1993 |
| 6. Oban Hills | 5.554 | 8.587 | Onadeko et al. 2010 |
| 7. Nguti | 5.335 | 9.418 | USNM 505739-40 |
| 8. Mukango | 5.128 | 9.113 | This study |
| 9. Talangaye | 5.151 | 9.406 | This study |

1,2,3 Approximate coordinates inferred from Weinberg 2008, IUCN 2012 and Grandison 1981 respectively. USNM: Smithsonian Institution catalog numbers.

observations support Gartshore's (1984) findings that this species is frequently found in aggregations of as many as 40 individuals of mixed gender and life stage. Individuals have been found in the leaf litter or perched atop low-lying vegetation. In many instances individuals have been found in edge or disturbed areas, including secondary forest and farmland (Gartshore 1984; Lawson 1993; this study).

Both Grandison (1981) and Gartshore (1984) speculated that this species was either viviparous or underwent direct development. Gartshore (1984) discovered individuals in the vicinity of gelatinous masses but was unable to verify these were anuran in origin. Sampling at the Mukango locality reported here included the observation of an individual (not collected) in the leaf litter next to a small clutch of 10 eggs (Figure 2), lending support to the hypotheses of terrestrial egg deposition and direct development (Grandison 1981; Gartshore 1984; Lawson 1993).

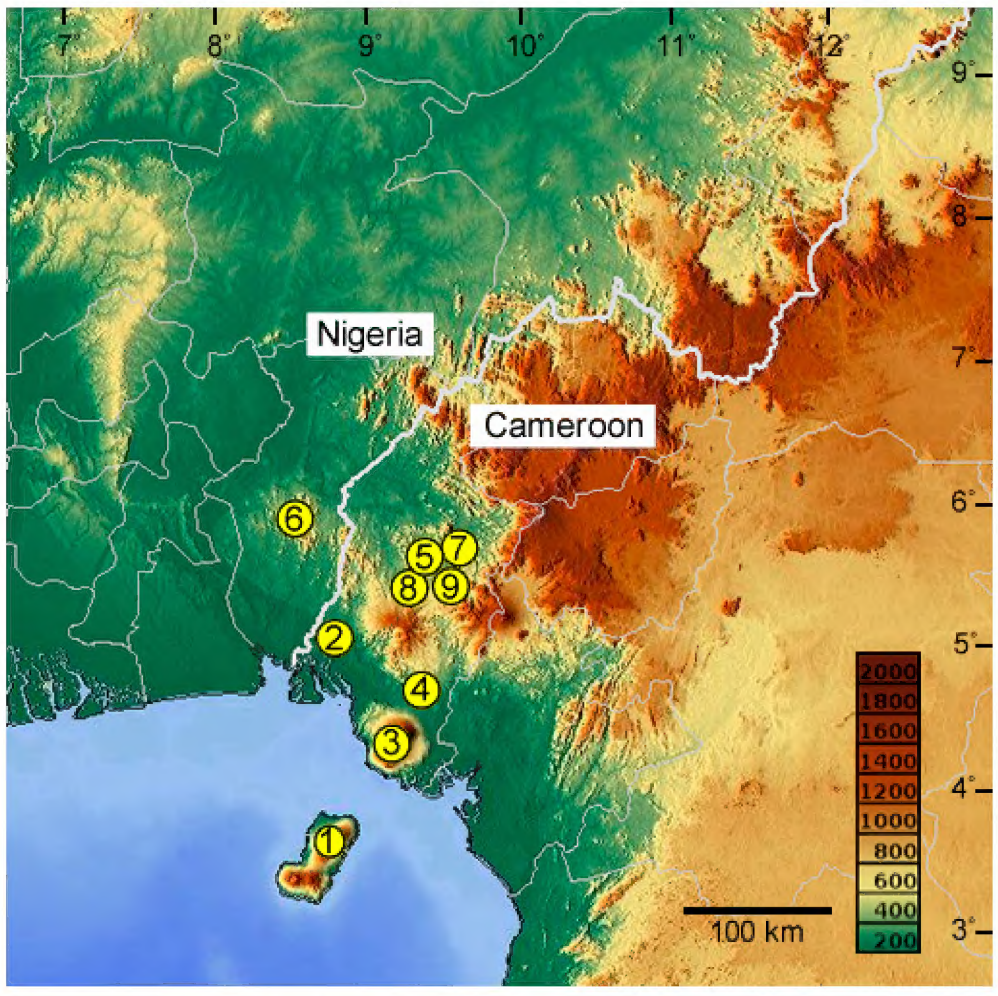


**Figure 1.** Geographic distribution of *Didynamipus sjostedti* in southwest Cameroon and southeast Nigeria. Coordinates and names of localities are presented in Table 1.

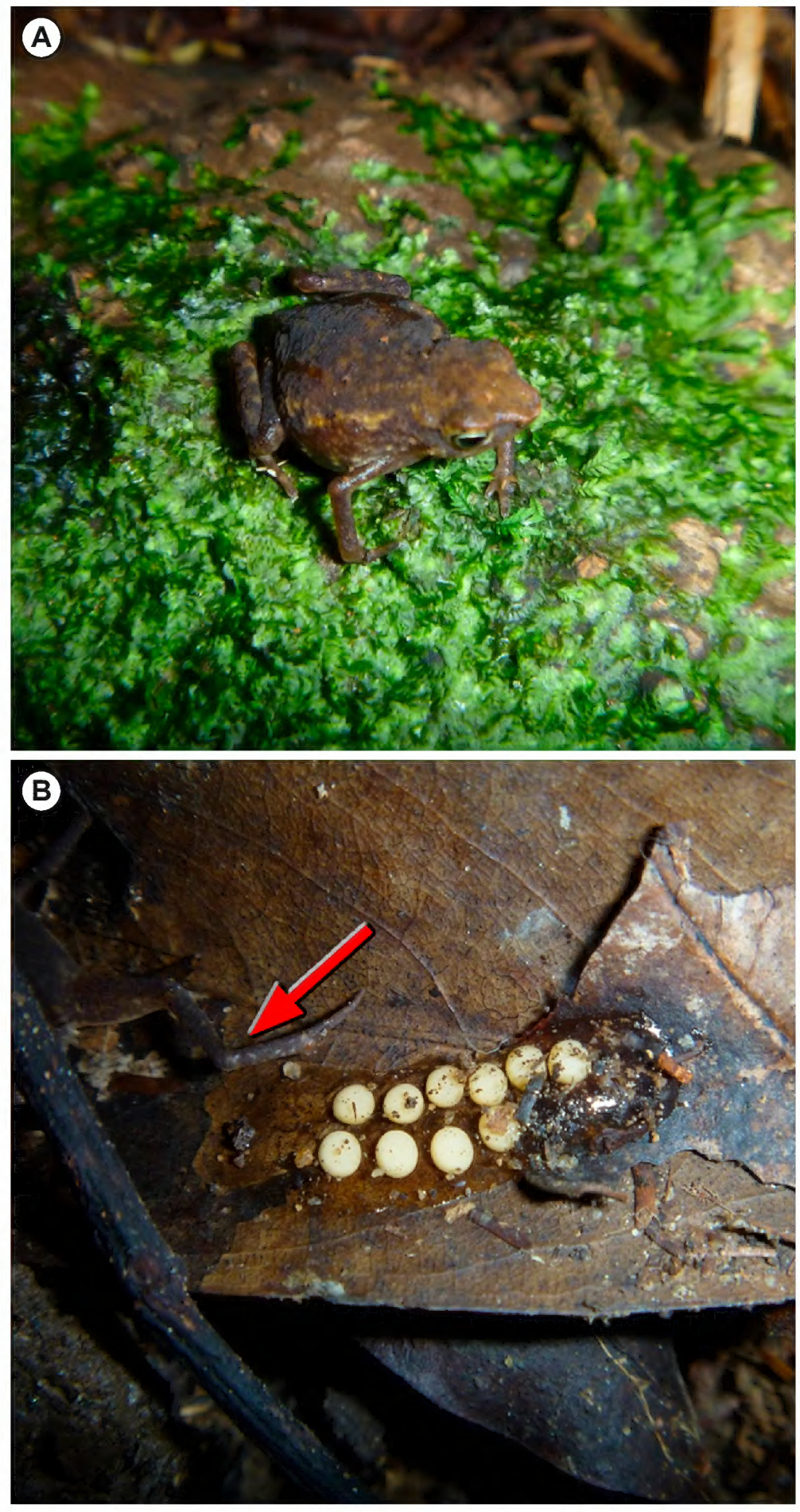


**Figure 2.** A: Photograph of uncollected adult *Didynamipus sjostedti*. B: a clutch of 10 eggs discovered near an adult (uncollected) *D. sjostedti* (arrow) from the locality of Mukango, Cameroon. Photographs by LNG.

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